Selected Abstracts from the October Issue of the European Journal of Vascular and Endovascular Surgery

Jean-Baptiste Ricco, MD, PhD, Editor-in-Chief, and A. Ross Naylor, MBChB, MD, FRCS, Senior Editor

Endovascular Stenting of Extracranial Carotid Artery Aneurysm: A Systematic Review

Li Z., Chang G., Yao C., Guo L., Liu Y., Wang M., Liu D., Wang S. Eur J Vasc Endovasc Surg 2011;42:419-26.

Objective: The objective of this study was to systematically review all available published data about endovascular stenting for patients with extracranial carotid artery aneurysm (ECAA).

Methods: All clinical reports in the English language on endovascular stenting for ECAA from 1995 through 2010 were identified. General clinical information, aetiology and parameter of carotid artery aneurysm, information regarding devices, indications for endovascular stenting and in-hospital and follow-up data of each patient were extracted individually.

Results: A total of 113 studies, involving a total of 224 patients, were included. Procedure success was reported in 92.8% of patients. Postoperative endoleak was reported in 8.1% of patients. The incidence of stroke was 1.8%. Cranial nerve injury occurred in 0.5%. Overall in-hospital mortality was 4.1%. The mean follow-up was 15.4 · 15.3 months. Stent-graft patency rate was 93.2%.

Conclusion: Endovascular stenting is technically feasible with high procedure success and relatively low complication rate in patients with ECAA. Both short- and mid-term outcomes appear to be favourable.

Implications of Attendance Patterns in Northern Ireland for Abdominal Aortic Aneurysm Screening

Badger S.A., Jones C., Murray A., Lau L.L., Young I.S. Eur J Vasc Endovasc Surg 2011;42:434-9.

Introduction: Evidence supports the introduction of an abdominal aortic aneurysm (AAA) screening programme. The aims of this study were to estimate future disease patterns and to determine the effect of the proportion attending on the programme's cost-effectiveness.

Patients and methods: The results of the local AAA screening programme were reviewed. Ultrasonic infrarenal aortic diameter of 30 mm was considered aneurysmal. Projected population numbers from the Department of Health and current disease prevalence were used to estimate future number of potential patients. The Multi-centre Aneurysm Screening Study (MASS) Markov model was used to calculate an incremental cost-effectiveness ratio (ICER) and 95% uncertainty intervals (UI), using a 30-year time horizon and 3.5% per annum discount, to determine the effect of attendance.

Results: Men were recruited from August 2004 to May 2010. 13316 were invited for a scan and 5931 (44.5%) attended. 321 AAA were diagnosed, giving a prevalence of 5.4%, while 27 large AAA (0.46%) were repaired. The annual incidence of AAA until 2021 will range from 441 to 526, with an incidence of 40–48 large AAA, with both showing a gradual increase with time. Using this attendance rate, the ICER was calculated at £2350 per life-year gained (95% UI: £1620–£4290), or £3020 per quality-adjusted life-year gained (95% UI: £2080–£5500).

Conclusions: The prevalence of disease in this local AAA screening was similar to other studies. The low attendance will result in many AAA being missed, but will not impact greatly on the long-term cost-effectiveness.

Endovascular Approaches to Acute Aortic Type A Dissection: A CT-Based Feasibility Study

Sobocinski J., O'Brien N., Maurel B., Bartoli M., Goueffic Y., Sassard T., Midulla M., Koussa M., Vincentelli A., Haulon S. Eur J Vasc Endovasc Surg 2011;42:442-7.

Background: Open graft replacement of the ascending aorta is the current treatment of choice for Stanford acute type A dissections. However, approximately 20% of patients are deemed unfit for open surgery. To determine if an endovascular option exists for this latter group of patients, we performed a computed tomography (CT)-based feasibility study.

Methods: A cohort of consecutive patients presenting to the cardiovascular care unit (CVCU) for an acute Stanford type A aortic dissection between 2006 and 2009 was retrospectively analysed. Inclusion criterion was a high-quality preoperative angio-CT scan that could be analysed on a three-dimensional (3D) workstation. Numerous anatomical parameters of the dissection were studied, including the location and the length of the primary proximal entry tear. Finally, we determined which of the patients would have been potential candidates for an endovascular repair (stentgraft implantation).

Results: A total of 102 patients were included in our study. The median distance of the primary entry tear to the closest coronary artery was 23 mm (range 0–128). The median true lumen and true + false lumen (total) diameters at the level of the entry tear was 38 mm (range 22–78) and 46 mm (range 28–93), respectively. The median length of the ascending aorta was 84 mm (range 40–130). An endovascular repair with a tubular stentgraft was deemed feasible in 37 patients. An additional eight patients were also candidates for a tubular endovascular repair but would have required a carotidecarotid cross over bypass. Finally, an arch-branched stentgraft could have been used in 13 patients to exclude an entry tear located in the arch.

Conclusion: Open repair of acute type A dissection is and remains the 'gold standard' of care. Our study demonstrates that approximately half the patients undergoing an open repair could potentially benefit from an endovascular repair. This new treatment option has not been evaluated to date.

Endovascular Repair of Complicated Acute Type-B Aortic Dissection with Stentgraft: Early and Mid-term Results

Shu C., He H., Li Q.-M., Li M., Jiang X.-H., Luo M.-Y. Eur J Vasc Endovasc Surg 2011;42:448-53.

Objectives: To analyse the experience of a single centre and evaluate the early and mid-term results of endovascular repair of complicated acute type B aortic dissection with stentgrafts.

Method: From July 2002 to January 2009, 45 patients (12 women, 33 men) with complicated acute type B aortic dissection (mean age, 42.6 years; range, 31–47 years) were treated with Thoracic Endovascular Aortic Repair (TEVAR). Indications for treatment included rupture in 6(13%), hematothorax with impending rupture in 27(60%), malperfusion syndrome in 11 (22%), and transient paraplegia in one patient (2.2%). Five kinds of commercially available thoracic stentgrafts were used. Follow up was 100% during a period of 13 months (range, 1–36 months).

Results: Technical success (coverage of the primary tear site) was achieved in all 45 patients(100%) including deliberate partial or total coverage of the LSA in 7 patients (15.6%). The 30-day and in-hospital mortality was 4.4% including one late rupture case. Overall survival was 95.6% at 1 and 3-years' follow-up. None of the patients with malperfusion required adjunct distal stents All hemothoces resolved within 3 months including 5 patient required thoracentesis and one had tube thoracostomy. And 7 patients required temporary dialysis In-hospital complications occurred in 26.7% of patients and re-intervention was required in one patient and no patient had postoperative paraplegia Postoperative CT angiography showed 25 patients (58.1%) with complete thrombosis of the false lumen and re-expansion of the true lumen.

Conclusions: Endovascular repair of complicated acute type B aortic dissection with stentgraft is proven to be a technically feasible and effective in this relatively difficult patient cohort, The short and mid-term efficacy are persuasive, however, the long-term efficacy needs to be evaluated further.

Advanced Catheter Technology: Is This the Answer to Overcoming the Long Learning Curve in Complex Endovascular Procedures

Riga C.V., Bicknell C.D., Sidhu R., Cochennec F., Normahani P., Chadha P., Kashef E., Hamady M., Cheshire N.J.W. Eur J Vasc Endovasc Surg 2011;42:531-8.

Introduction: Advanced endovascular procedures require a high degree of skill with a long learning curve. We aimed to identify differential increases in endovascular skill acquisition in novices using conventional (CC), manually steerable (MSC) and robotic endovascular catheters (RC).

Materials/methods: 10 novices cannulated all vessels within a CT-reconstructed pulsatile-flow arch phantom in the Simulated Endovascular Suite. Subjects were randomly assigned to conventional/manually-steerable/robotic techniques as the first procedure undertaken. The operators repeated the task weekly for 5 weeks. Quantitative (cannulation times, wire/catheter-tip movements, vessel wall hits) and qualitative metrics (validated rating scale (IC3ST)) were compared.

Results: Subjects exhibited statistically significant differences when comparing initial to final performance for total procedure times and catheter-tip movements with all catheter types. Sequential non-parametric comparisons identified learning curve plateau levels at weeks 2 or 3(RCs,